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COMMENTARY

Gastric carcinoma prevalence has declined in recent decades, but it remains a highly lethal disease when allowed to progress beyond the earliest stages. Gastroscopic examination currently is the only method available to discover gastric carcinoma in its potentially curable presymptomatic phase. Prevalence levels generally do not justify costs of gastroscopic screening of the general population, but a small segment of the population with a higher prevalence rate could be screened if identified. The report in this issue by Okusa et al. describes an association between immunohistochemical identification of p53 in gastric carcinoma and familial occurrence of the disease. The authors suggest that p53 overexpression in their carcinomas can identify kindreds with familial gastric carcinoma and suggest screening of these kindreds for early stages of the disease.

The data presented by Okusa et al. show that in the population studied, the cutoff for immunohistochemical p53 positivity that they suggest—strong-intermediate vs. weak/negative—resulted in the following values: sensitivity 80%, specificity 62%, positive predictive value 23%, false positive rate 38%, and efficiency of classification 64%. This means that strong-intermediate p53 staining identified 80% of patients with familial gastric carcinoma while falsely identifying 38% as belonging to gastric carcinoma families when they did not. Of those identified as possibly belonging to gastric carcinoma kindreds, only ~20% would actually prove to belong to such a kindred. Nonetheless, at this rate individuals might be willing to undergo gastroscopy because of a chance of cure of an otherwise highly lethal disease. Okusa et al. found the prevalence of familial gastric carcinoma to be 10% of all gastric carcinoma. In the United States, the gastric carcinoma death rate has fallen from >30 per 100,000 in 1930 to ~5 per 100,000 in 1992 [1], and a decline also has been observed in Japan. In 1996, 22,800 diagnoses of stomach carcinoma are expected to be diagnosed in the United States [1]. If the familial rate were 10%, 2,280 kindreds could be identified, of which 80% (1,824) would be identified by the p53 test, whereas another 456 would be missed because of the 80% sensitivity rate of the test. Another 8,665 patients with gastric carcinoma would be identified erroneously as belonging to gastric carcinoma kindreds because of the 38% false positive rate. The total number of kindreds to be screened would then be 8,665 + 1,824 = 10,489.

Before considering a screening program based on the gastric carcinoma p53 test, confirmation of its relationship to familial gastric carcinoma is needed. Next, a study of the receiver operator characteristic of the test, i.e., the selection of an ideal cutoff point giving the best obtainable sensitivity to false positive ratio should be done. Relatives of patients with p53-positive gastric carcinoma could then be offered information on which they could base a decision on whether to accept screening for gastric carcinoma.

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